REMARKS/ARGUMENTS

Section 112 Rejection

Claim 16 has been rejected under 35 U.S.C. 112, second paragraph, as being indefinite because it indicates that a mixture of plaster, water and filler comprises a quantity of water which is substantially equal to or greater than twice the quantity of water necessary for crystallization of plaster at atmospheric pressure, whereas dependent claim 2 contains only 35% water by weight of plaster and Applicant has indicated that about 19% water by weight of plaster is required for crystallization of the plaster.

Applicant believes that there is no contradiction between claim 16, claim 2 and the quantity of water required for plaster crystallization, because claim 16 indicates that the quantity of water is "substantially" equal to twice the quantity necessary for crystallization and is not exactly equal to twice this necessary quantity of water. When the quantity of water necessary for crystallization is 19%, twice this quantity is 38% and "substantially" twice this quantity may be between about 35% and 41%, for example, as described at page 6, line 1 of the specification. Consequently, claim 2 does not broaden the water content of the main claim, it only indicates the minimal value of "substantially" twice the quantity of water necessary for crystallization of plaster.

However, in order to provide a solution that should be immediately acceptable to the Examiner, Applicant has amended claim 16 to read: "...said mixture comprising a quantity of water which is equal to or larger than 35 parts by weight per 100 parts by weight of plaster, applying to the mixture...". This recitation is supported in the specification at page 6, line 1.

Prior Art Rejection

Claim 16 has also been rejected under 35 U.S.C. 103(a) over Brouard, Randel and Revord. The Examiner notes that Brouard discloses a mixture of plaster, water and filler with the same quantity of water as in claim 16, Revord teaches that setting of gypsum base products can proceed after unmolding and Randel teaches molding of a mixture of plaster and water at a pressure of 4000 psi, the quantity of water in the mixture being the same as in claim 16.

However, when Brouard, Randel and Revord are combined or taken in view of one another, they neither teach nor suggest the invention of claim 16 and they do not make this invention obvious to one skilled in the art.

a) First, as explained more fully below, there are many differences between Brouard, Randel and Revord. Because of these differences, the teachings of these prior art documents cannot properly be combined together as proposed by the Examiner.

Brouard and Revord concern the molding under pressure of a mixture of plaster, water and filler whereas Randel discloses only mixtures of plaster and water without filler,

Brouard teaches that the mixture of plaster, water and filler contains 1.3 to 1.5 liters of water for 4 kg of plaster, i.e. a water content of 32.5 to 37.5 parts by weight per 100 parts of plaster whereas Revord teaches that the quantity of water is between 16 and 20 cc. of water per 100 grams of plaster and Randel teaches to mix plaster with a sufficient quantity of water to obtain a pouring consistency, this quantity of water being between 25 and 45 cc. per 100 grams of plaster (see Randel, page 3, lines 2-7 and page 4, lines 5-11).

Brouard teaches that the mixture comprising the above-mentioned quantity of water is slowly compressed in the mold, which permits expelling from the mold any water which may be in excess relative to the exact quantity of water required for hydrating (crystallizing) the plaster (see col. 1, lines 62-67 and col. 2, line 1 ; col. 6, lines 11-17) so that, when the pressure is at a maximum value in the range of 50 bars to 100 bars (col. 6, lines 4-6), the mixture in the mold contains only the quantity of water required for crystallization of the plaster (i.e. about 19% in weight). The plaster crystallizes under pressure in the mold and the product is unmolded after crystallization of the plaster.

Revord teaches that the mixture of plaster, water and filler containing from 16 to 20 cc. of water per 100 grams of plaster is compressed in a mold at a pressure between 500 psi and 7,500 psi, then is unmolded and permitted to dry in a humidity chest for 24 hours, and then is submerged in water for 24 hours. (Revord does not indicate the duration of the mixture compression in the mold and does not indicate whether the plaster crystallizes under pressure in the mold or not). In fact, the plaster crystallization begins as soon as plaster is mixed with water, it continues under pressure in the mold and it terminates after unmolding, the difference with

Brouard being that Revord does not indicate how much time the mixture is left under pressure in the mold.

Randel concerns a specific form of calcined gypsum (i.e. plaster) which, when rehydrated, produces a gypsum cast of high strength. Heat is applied to gypsum rock under carefully controlled conditions of pressure, time and temperature, and the plaster thus obtained comprises rather large, definite, well-formed crystals whereas the common plaster comprises very minute crystals of calcium sulphate hemi hydrate (see Randel, page 2, lines 2-7 and 50-56). Randel further indicates that the strength of set casts prepared from calcined gypsum increases as the amount of water mixed with the calcined gypsum decreases, that all ordinary calcined gypsum requires the addition of more than 50% water to bring the resultant mix to pouring consistency, that the calcined gypsum according to his invention has the property of requiring less than 50% water to bring the mix to pouring consistency (see page 3, lines 10-21) and that this property explains in part the high strength of cast prepared from this material (page 3, lines 21-24).

Importantly, Randel teaches the use of a special plaster having large crystals and which requires less water for pouring consistency than the ordinary plasters. Randel further indicates that, when molding his plaster by a press at 35 cc. consistency and 5 psi pressure, the excess water is squeezed out through the joints in the mold and the set cast has a water absorption of only 5.5%. When molded at 4000 psi pressure, the casts have an absorption of only 3.2% (col. 4, lines 12-19).

No information is given by Randel concerning the crystallization of the plaster inside or outside the mold, under pressure in the mold or at the atmospheric pressure or concerning the duration of the compression in the mold, so that the one skilled in the art cannot know whether the plaster is crystallized under pressure in the mold or not.

It results from the above that:

Brouard discloses a slow compression of a mixture of plaster, water and filler into a mold, the mixture having a water content of 32.5% to 37.5% by weight of plaster, at a pressure between 50 and 100 bars and during a time corresponding approximately to the crystallization of the plaster under pressure in the mold;

Revord discloses compression of a mixture of plaster, water and filler at a high pressure (7500 psi), the water content being 16-20 cc. for 100 grams of plaster, but does not give any information on the crystallization of the plaster inside the mold or outside the mold, mentioning only that the product sets after unmolding;

Randel discloses a method for making a specific calcined gypsum which requires less water than ordinary plasters for having a pouring consistency but does not give any information on the crystallization of the rehydrated calcined gypsum, under pressure or not, and inside or outside a mold.

The teachings of these three prior patents are thus contradictory. Nothing in these references provides a suggestion or motivation to combine the teachings in the manner proposed by the Examiner to arrive at applicant's claimed invention. Indeed, the contradictory teachings would lead the person of ordinary skill in the art away from any attempt to combine the teachings of these references.

The only prior patent which discloses the plaster crystallization is Brouard, which teaches that the mixture of plaster, water and filler must be kept in the mold approximately until ***the end of the crystallization*** of the plaster under pressure. This prior art cannot suggest to one skilled in the art that the mixture of plaster, water and filler should be unmolded ***before crystallization*** of the plaster.

b) Second, the combinations of these three prior patents neither teaches nor suggests the particular value of the water content in the mixture and the particular value of the pressure applied to this mixture in a mold to prevent or inhibit the crystallization of the plaster in the mold. It is commonly admitted in the prior art that the crystallization of the plaster begins as soon as the plaster is in contact with water and Brouard teaches that the plaster crystallization continues under pressure in the mold, till the end of the crystallization.

Moreover, these three prior patents neither teach nor suggest that, when the plaster crystallization has been stopped or inhibited under pressure in the mold, the mixture can be unmolded and that the plaster crystallization is re-initiated automatically outside the mold. Surprisingly, the product according to the present invention in which the plaster crystallizes outside the mold has the same high mechanical properties as a product in which the plaster has crystallized under pressure in a mold.

It is therefore clear that the invention of claim 16 can not result from any combination of Brouard, Revord and Randel and is not obvious from Brouard in view of Randel and Revord.

c) Third, the Examiner should take into account the fact that the present invention is based on a physical phenomenon which was not known, this phenomenon being that the crystallization of the plaster in a mixture of plaster, water and filler can be stopped or inhibited by a particular combination of water content and pressure, whereas the prior art admits the plaster crystallization begins as soon as plaster is in under pressure, till the hydrated plaster is fully crystallized and set.

This phenomenon was not known by Brouard because Brouard uses pressures of 50-100 bars which are too small for inhibiting the plaster crystallization in the mold.

This phenomenon was not known by Revord because Revord uses a water content of 16-20 cc. of water per 100 grams of plaster, this water content being too small for inhibiting the plaster crystallization in the mold even when the pressure is higher than 150 bars.

This phenomenon was not known by Randel which mainly discloses a method for manufacturing a new plaster which requires less water for having a pouring consistency, Randel gives no information on the possibility to stop the plaster crystallization under pressure in a mold.

This phenomenon, which is the basis of the present invention, was unknown before the present invention. The method recited in claim 16 is an application of this phenomenon and cannot be obvious for one skilled in the art, namely because the people skilled in the art did not have any knowledge of this phenomenon and could not apply it for making building elements.

For the reasons noted, independent claims 16 and the claims dependent therefrom define an invention which is both novel and non-obvious with respect to the prior art. Reconsideration by the Examiner, withdrawal of the rejection, and formal notification of the allowability of all claims are earnestly solicited.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required

therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

/ Raymond O. Linker, Jr. /

Raymond O. Linker, Jr.
Registration No. 26,419

Customer No. 00826
ALSTON & BIRD LLP
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
Tel Charlotte Office (704) 444-1000
Fax Charlotte Office (704) 444-1111
CLT01/4835338v1

ELECTRONICALLY FILED USING THE EFS-WEB ELECTRONIC FILING SYSTEM OF THE UNITED STATES PATENT & TRADEMARK OFFICE ON JUNE 20, 2006.